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Vocabulary Acquisition in Aphasia: Learning, Maintenance, and Output Modality

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Background

Case studies have recently revealed great interindividual variability in the ability to learn and maintain novel words in aphasia (Kelly & Armstrong, 2009; Tuomiranta et al., 2011a; Tuomiranta, Rautakoski, Martin & Laine, 2011b). We explored learning vs. maintenance (spoken vs. written output) of newly learned words in TS, a person with chronic aphasia and post-semantic anomia.

Method

TS was a 49-year-old Finnish-speaking female with moderate non-fluent aphasia and right hemiplegia following a CVA 7 years earlier. TS had relatively functional language comprehension skills while speech production, especially repetition and naming, was clearly impaired. Her performance patterns suggested impairments in the phonological output lexicon, phoneme assembly, and grapheme assembly. Written naming was on par with oral naming (27/60 vs. 25/60 correct on the BNT). Six healthy participants (one male) of corresponding age and education served as controls.

We employed the Ancient Farming Equipment (AFE; Laine & Salmelin, 2010) word learning task where one needs to associate images of unfamiliar tools with their equally unfamiliar names. During the four learning sessions, twenty names were presented altogether twenty times in spoken and written form, and the participant was to repeat each name. Learning and maintenance were followed up by oral (all participants) and written (only TS) naming tasks up to 6 months post training.

Results

The spoken naming learning curve for TS reached the lowermost end of the normals' range, but maintenance was outside that range. However, in written naming, maintenance of word learning was better preserved. Nevertheless, six months post training, TS could not name the items orally or in written form.

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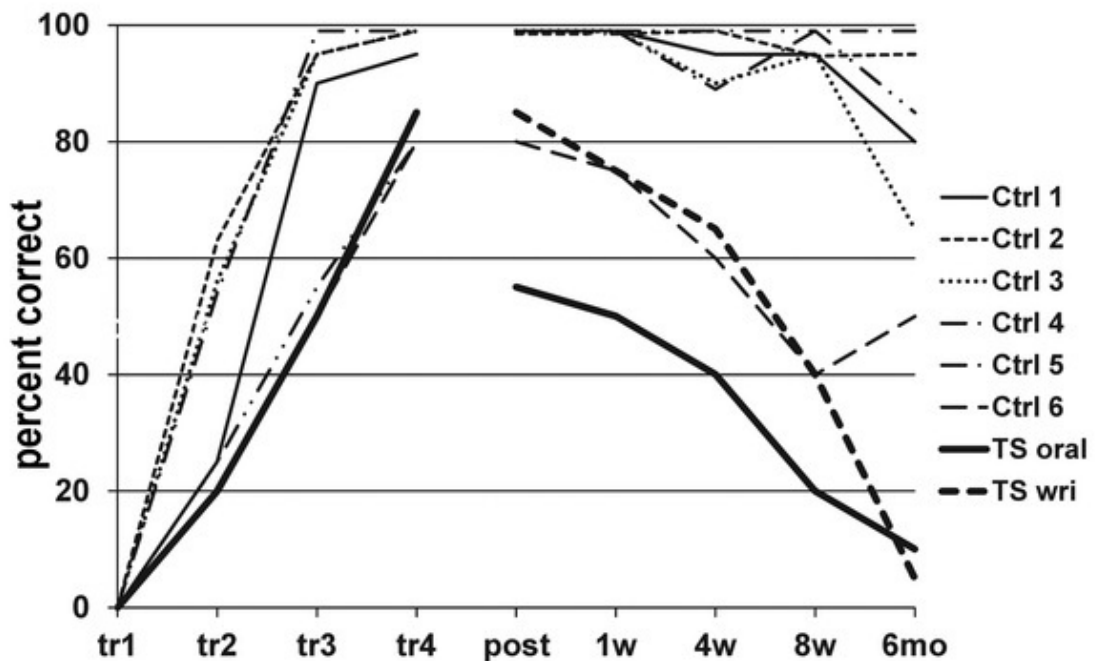


Figure 1. Spontaneous confrontation naming results of 20 novel items during the training period and the follow-up as percentage of accurate responses. TS's follow-up performance is depicted separately for oral (oral) and written (wri) naming. The six controls named only orally.

Discussion

The two main findings are as follows: First, oral naming by TS was rather well preserved during the learning phase, but impaired during the maintenance phase. Together with our earlier aphasia study with impairment already at the learning phase (Tuomiranta et al., 2011a), this suggests that different phases of vocabulary acquisition can be compromised in different individuals with aphasia. Second, the performance difference between the naming channels during the maintenance phase highlights the importance of exploring both spoken and written output when studying word learning outcomes in aphasia.

References

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